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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/650,313	08/28/2003	Dennis Stamires	ACH6273US	6906

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EXAMINER

JOHNSON, CHRISTINA ANN

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 12/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/650,313	STAMIREs ET AL.	
	Examiner	Art Unit	
	Christina Johnson	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 and 37-40 is/are pending in the application.
- 4a) Of the above claim(s) 38-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 and 37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1/20/04, 4/26/04</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, claims 1-33 and 37 in the reply filed on September 8, 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 38-40 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on September 8, 2005.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-33 and 37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 recites the limitation "an additional material selected from the group consisting of anionic clay, smectite clay, and thermally or chemically modified forms thereof." The specification as originally filed does not provide sufficient support for this

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limitation. The specification states: "The buffer may be selected from...anionic clay, smectite and thermally or chemically modified clay. The thermally or chemically modified clay may be kaolin clay." Therefore, there is no support for the limitation thermally or chemically modified forms of anionic clay or smectite clay.

Additionally, the specification only describes these additional materials as pH buffer materials. It is not clear that these would be incorporated into the composition (i.e. they may be removed after buffering the solution). Also, with respect to the method of making claims, it is not clear how the composition is formed. It does not appear that the specification as originally filed envisioned a composition which further contained an anionic clay or smectite clay.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 21-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claims 21-28 form incomplete method claims. The methods recite making only a portion of the product claimed. Therefore, the scope of the claim is unclear. A complete method of making claim should include steps to forming the product claimed, i.e. should detail how the zeolite, acidic cracking promoter, and additional components are combined.

8. Claim 29 recites "The method of Claim 21." However, claim 21 is a product. Therefore, it is not clear if (1) applicant intended the claim to depend from another

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method of making claim such as claim 22 or (2) applicant intended to recite a method of making the composition of claim 22. Note that if it is (2), this would also form an incomplete method claim as discussed above.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-2, 4-13, 16-23, and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 00/31215.

WO 00/31215 discloses a catalyst composition useful in catalytically cracking heavy hydrocarbon feed to lighter hydrocarbon products, including olefins (page 3, lines 20-22). The catalyst composition comprises ZSM-5 in combination with a matrix material (page 3, lines 22-25). The ZSM-5 zeolite may be stabilized with phosphorus (page 19-25). Suitable clay materials include montmorillonite, a smectite (page 9, lines 30-32). It is taught that the composition may further include a cracking component such as an USY or dealuminated Y zeolite or pillared silicates and/or clays (page 7, line 25 – page 8, line 15). The Y zeolite may be exchanged with a rare earth metal (page 8, lines 7-8). In addition, the catalyst may contain a porous matrix material such as silica-magnesia, silica-zirconia, silica-magnesia (page 10, lines 3-5). The amounts of materials taught by the reference would meet the instantly claimed amounts. It is taught

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that the composition is prepared by combining the components of the catalyst in slurry form, followed by spray drying to form particles 20-200 microns in diameter (page 8, line 25 – page 9, line 16).

As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by WO 00/31215.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/31215 as applied to claims 1-2, 4-13, 16-23, and 29 above, and further in view of Tsang et al.

The teachings of the WO reference are as described above for claims 1-2, 4-13, 16-23, and 29.

The difference between the WO reference and the instant claims is that the reference does not disclose that the pentasil zeolite is silicalite, although the reference does teach that high silica ZSM-5 may be used.

Tsang et al. (US 5,472,594) discloses an FCC process for producing olefins using a catalyst containing a phosphorus containing medium pore zeolite in combination

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with a Y zeolite (column 4, lines 55-69). Suitable medium pore zeolites include silicalite, a high silica form of ZSM-5, and ZSM-5 (column 6, lines 1-10).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the composition taught by the WO reference to include the use of silicalite in light of the teaching by Tsang et al. that silicalite is functionally equivalent to ZSM-5. One of ordinary skill would have been motivated to substitute known functional equivalents with a reasonable expectation of success.

13. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/31215 as applied to claims 1-2, 4-13, 16-23, and 29 above, and further in view of Eberly et al.

The teachings of the WO reference are as described above for claims 1-2, 4-13, 16-23, and 29.

The difference between the reference and the claims is that the reference does not disclose that the Y zeolite may be exchanged with vanadium.

Eberly et al. (US 3,591,488) teaches that Y zeolites useful in cracking processes may be exchanged with a promoter including vanadium (column 5, lines 15-40).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the composition of the WO reference to include the use of a vanadium promoter in light of the teaching by Eberly that such is a known promoter for cracking processes. Because both catalyst compositions can be used in the same process, one would have a reasonable expectation of success from the combination.

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14. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/31215 as applied to claims 1-2, 4-13, 16-23, and 29 above, and further in view of Swift et al.

The teachings of the WO reference are as described above for claims 1-2, 4-13, 16-23, and 29.

The difference between the reference and the claims is that the reference does not disclose that the cracking promoter includes alumina-aluminum-phosphate.

Swift et al. (US 4,228,036) teaches a catalyst composition useful in the catalytic cracking of light or heavy hydrocarbon feedstock comprising a zeolite composited with a alumina-aluminum phosphate-silica matrix (column 3, lines 10-25). It is taught that the catalyst containing such a matrix has greater selectivity and greater metals tolerance (Abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the composition taught by the WO reference to include the use of the matrix taught by Swift et al. in light of the advantages disclosed therein. Because both catalyst compositions can be used in the same process, one would have a reasonable expectation of success from the combination.

15. Claims 24, 30-33, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/31215 as applied to claims 1-2, 4-13, 16-23, and 29 above, and further in view of Butter et al.

The teachings of the WO reference are as described above for claims 1-2, 4-13, 16-23, and 29.

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The difference between the reference and the claims is that the reference does not disclose that the phosphorus is loaded by ion-exchange.

Butter et al. (US 3,972,832) teaches a process for loading phosphorus on a ZSM-5 zeolite by ion-exchange. Refer to columns 4-5.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method taught by the WO reference to include the ion-exchange step taught by Butter et al. One would have been motivated to do so with a reasonable expectation of success in light of the fact that the WO reference specifically mentions that the method of Butter et al. is a suitable way of loading phosphorus onto the zeolite. Refer to page 7, lines 20-25 of the WO reference.

16. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/31215 as applied to claims 1-2, 4-13, 16-23, and 29 above, and further in view of Brady et al.

The teachings of the WO reference are as described above for claims 1-2, 4-13, 16-23, and 29.

The difference between the reference and the claims is that the reference does not disclose that the phosphorus is added to the ZSM-5 zeolite using doped seeds.

Brady et al. (US 6,964,934) teaches a process for the preparation of a ZSM-5 zeolite using doped seeds (column 1, lines 55-60 and column 2, lines 50-60). Suitable dopants include phosphorus (column 2, lines 20-30). The reference suggests that using doped seeds results in a better distribution of the dopant, leading to increased activity,

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selectivity, and stability of the zeolite (column 1, lines 30-35). The zeolite may be used in cracking processes (column 4, lines 25-31).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method taught by the WO reference in the manner taught by Brady et al. (i.e. using doped seeds). One would have been motivated to do so in light of the advantages taught by Brady et al. Because both catalyst compositions can be used in the same process, one would have a reasonable expectation of success from the combination.

17. Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/31215 as applied to claims 1-2, 4-13, 16-23, and 29 above, and further in view of Rao

The teachings of the WO reference are as described above for claims 1-2, 4-13, 16-23, and 29.

The difference between the reference and the claims is that the reference does not disclose that the phosphorus is added to the ZSM-5 zeolite using doped reactants or doped faujasite seeds.

Brady et al. (US 6,936,239) teaches a process for the preparation of a ZSM-5 zeolite using doped faujasite seeds (column 1, lines 30-40 and column 2, lines 20-25). Suitable dopants include phosphorus (column 2, lines 10-15). It is also taught that the reactants may also be doped with a dopant such as phosphorus (column 3, lines 5-10). The zeolite may be used in cracking processes (column 4, lines 25-31).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method taught by the WO reference in the manner taught by Rao. One would have been motivated to do so in light of the teaching by Rao that such a method results in the product desired by the WO reference.

Because both catalyst compositions can be used in the same process, one would have a reasonable expectation of success from the combination.

Conclusion

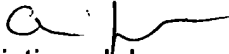
18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Johnson whose telephone number is (571) 272-1176. The examiner can normally be reached on Monday-Friday, 7:30-5, with Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Christina Johnson
Primary Examiner
Art Unit 1725

14/8/05

CAJ
December 8, 2005